R E P O R T R E S U M E S

ED 010 699 CG 000 007

EVALUATING PROGRAMMED TEST INTERPRETATION USING EMOTIONAL AROUSAL AS A CRITERION.

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PUB DATE 5 APR 66

EDRS PRICE MF-$0.09 HC-$0.24 6P.

DESCRIPTORS- INTELLIGENCE TESTS, SELF EVALUATION, *OVERACHIEVERS, *UNDERACHIEVERS, INTERVIEWS, *TEST INTERPRETATION, *PROGRAMMED INSTRUCTION, COUNSELING, DISTRICT OF COLUMBIA

THE QUESTION AS TO WHETHER OR NOT THE EMOTIONAL ASPECTS OF TEST INTERPRETATION MAKE IT INAPPROPRIATE FOR PROGRAMED METHODS WAS EXAMINED BY TWO METHODS OF TEST RESULT COMMUNICATION--PROGRAMED MATERIALS AND VERBAL COMMUNICATION BY A COUNSELOR. DEPENDENT VARIABLES WERE MEASURES OF EMOTIONAL AROUSAL RECORDED BY SKIN CONDUCTANCE UNITS AND THE GAIN IN SELF-ESTIMATION OCCURRING AS A RESULT OF THE TEST INTERPRETATION. ONE-HALF OF 56 MALE FRESHMEN SAMPLED FROM THE POPULATION OF OVERACHIEVERS, UNDERACHIEVERS, AND PREDICTABLE ACHIEVERS WERE RANDOMLY ASSIGNED TO THE PROGRAM METHOD, AND ONE-HALF ASSIGNED TO THE COUNSELOR INTERVIEW METHOD. ACCURACY IN SELF-ESTIMATION OF OVERACHIEVING AND UNDERACHIEVING BY PROGRAMED MATERIALS WAS SIGNIFICANTLY HIGHER THAN BY COUNSELOR INTERVIEW. UNDERACHIEVER'S AND PREDICTABLE ACHIEVER'S AROUSAL WAS LOWER THAN THE OVERACHIEVER (WHO MAY FEEL THREATENED) WHEN TEST RESULTS WERE COMMUNICATED BY COUNSELORS. STUDENTS WHO COULD ACCURATELY ESTIMATE THEIR APTITUDE CITED THE SAME COMMERCIALLY PREPARED, SELF-INTERPRETATION MATERIALS. THE AUTHOR CAUTIONS SCHOOL PERSONNEL TO BE AWARE OF A STUDENT'S CONCEPTION OF HIS ABILITY BEING BASED ON THE RESULTS OF ONE COMMERCIAL TEST THAT PROVIDES SELF-INTERPRETATION. THIS SPEECH WAS PREPARED FOR THE AMERICAN PERSONNEL AND GUIDANCE ASSOCIATION CONVENTION (WASHINGTON, D.C., SESSION 217, APRIL 5, 1967). (JH)

SPEECH

FROM A.P.G.A. CONVENTION
AMERICAN PERSONNEL AND GUIDANCE ASSOCIATION
1605 NEW HAMPSHIRE AVE., N.W., WASHINGTON 9, D.C.

ED010699

CG 000 007

Session 217

Place - Sheraton-Park Hotel
Delaware-Dover Room

Date - April 5, 1966
8:00-9:30

Title - EVALUATING PROGRAMMED TEST INTERPRETATION USING EMOTIONAL AROUSAL AS A CRITERION

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The need for effective means of communicating test results to individuals is well recognized in guidance and psychology. In 1963, the Russell Sage Foundation began a program of research on the social consequences of standardized ability tests and included in this research were two opinion surveys---one of an adult sample and the other of 10,000 secondary school students. Brim (1965), writing in the American Psychologist, formulated from the data some insights and hypotheses about identifiable anti-testing sentiment. One of the major issues involved the inaccessibility of test data. Thirty-eight percent of the secondary school students said they got no feedback at all and another 24% got only a general idea. Generally, well-informed specialists such as members of the APA Committee on Psychological Assessment have recommended more and better methods of feedback.

Fortunately, it would seem, there have been rapid changes in other areas of learning and educational technology, such as the programmed learning explosion, that could help solve this communication problem. The evidence on the effects of programmed learning is fairly clear-cut, indicating that rational learning can occur more effectively (or at least as effectively) through the use of programmed methods than through most other means of learning and communication. Such knowledge would suggest that much effort toward the preparation of programmed materials for communicating test results should be occurring around the country unless there is something unique about test result information that make such methods inappropriate.

The literature on pros and cons of programmed test interpretation is rather sparse, but it is likely that objections will come up. Brim, for instance, says we do not routinely give information to people about their test scores because those who do poorly may find the information disturbing and besides this, he says that the inexperienced person often uses results too rigidly. Several years ago, Shoben (1951) suggested that intelligence tests are highly complex bits of knowledge and if the student doesn't understand, giving him results is doing him no favor. This opinion is based on the idea that not all can understand the subtlties of what intelligence tests really measure. Olsen (1963), who wrote the test

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interpretation chapter in the 1963 NSSE Yearbook titled The Impact and Improvement of School Testing Programs, warns that a common error in interpreting intelligence tests is the failure to recognize emotional reactions to test scores and to take cognizance of them. I must admit that it is difficult to build programmed test interpretation materials that will take cognizance of emotional reactions. Yet, the emotional reaction to test results is a legitimate concern, considering the value given to mental ability in our society. It is not surprising that some individuals measure their self-worth in terms of test scores. The question exists as to whether or not the emotion aspect of test interpretation makes it inappropriate for programmed methods---which are admittedly somewhat mechanical.

Since questions concerning emotional reactions during test interpretation seemed to be important, the investigation I am about to describe was devised to explore this area. The first step was to find out if a reliable and valid objective measure of emotional arousal existed. If such a measure did exist, it would be relatively easy to set up a design in which different methods of test interpretation could be tried on individuals with specific patterns of test results. Consultation with one of the more knowledgeable specialists dealing with physiological measures of emotional arousal, Dr. Lykken of the University of Minnesota Psychiatric Research staff, resulted in the use of skin conductance measures. The equipment and technique are described by Dr. Lykken in a chapter titled "Psychophysiological Techniques and Personality Theory", which he recently wrote for the Handbook of Personality Theory and Research.

After measuring procedures were worked out, a design was formulated that permitted two different methods of test result communication, a method using programmed materials and a method using verbal communication by professional counselors in the interview situation. The programmed materials, consisting of a branching-type program of about 20 minutes duration, were prepared by the investigator. Basic principles of individual differences, psychometric testing, etc., were included along with expectancy table predictions of college performance, etc. An attempt was also made to select subjects with pre-defined test result characteristics, such as overachievement, underachievement, and predictable achievement. The consonance between high school performance and scholastic aptitude test results was used to classify college freshmen into these groupings.

The procedures were such that each of the 56 male freshmen sampled from populations of overachievers, underachievers, and predictable achievers was sent a letter which invited him to participate in research involving galvanic skin response. After each subject had been hooked up and calmed down, he was asked to fill out a questionnaire which measured accuracy in estimating his scholastic aptitude and mental ability. Then he was told he would be given a test of mental ability, which would be scored immediately and he could get the results of the test before leaving. After taking the Otis Quick-Scoring Test of Mental Ability, he received information about his test results via one of the two test interpretation methods previously described. Included in the test interpretation were results from previous testing which were available in his counseling bureau file. The design was such that one-half of each achievement predictability grouping had

been randomly assigned to the programmed method and one-half had been assigned to the counselor interview method. Four different counselors with appropriate training and experience alternately participated in the counselor interpretation method. After the test results had been communicated, each subject was again asked to estimate his aptitudes, relative to high school graduates and college freshmen. During the entire procedure, which took about two hours per subject, a continuous recording was made of his skin conductance.

The results were comprised of two dependent variable measures. The level of emotional arousal recorded in skin conductance units was one measure, while the other was the gain in accuracy of self-estimation occurring as a result of the test interpretation.

Results: The results indicate that overachieving and underachieving subjects who got their test results by means of the programmed materials gained significantly more accuracy in self-estimation than did those who had talked to counselors. However, in all groups except the overachievers, those who received results via programmed materials experienced greater emotional arousal than those who got the results from counselors. This tendency for lower arousal if results are communicated in counselor interviews did not hold for overachievers. In fact, the opposite results were suggested with this group, the higher arousal occurring in the counseled group.

Implications: The results of this investigation suggest that the communication of test results which might be called non-threatening on an a priori basis, is accompanied by less emotional arousal when done by a counselor rather than by programmed materials. However, when the results are threatening, as seems to be the case when overachievers learn that their test results would predict lower academic performance than actually had occurred, the effect of the counselor is not one of arousal reduction. Such results could hardly be used to recommend that test results be given to over-achievers by means of programmed materials, although such procedures might well be considered. The artificial circumstances in this experimental situation could not be called a typical counseling interview and it is possible that greater familiarity between counselor and counselee would have shown different results. However, the results do suggest that further exploration of students' emotional reactions to test interpretation is required.

From the available data, it would be difficult to say whether the level of emotional arousal was high enough in any of these subjects to cause concern. Even if one can detect differences between individuals, one cannot specify at this time what the significance is for any specific individual. We are still a long way from determining if in fact a person can be affected adversely by the feedback of test results and if he is, can we identify when this is happening by use of physiological signs.

One other point seems important. It is likely that the commercial test manufacturers will be expanding their use of self-interpretive materials to

provide feedback on their particular tests. I cite the ACT booklets with test results which are provided to students who take the ACT tests. In the research project just mentioned, most of the subjects who could accurately estimate their aptitudes cited the ACT results as their source of information. It behooves the school personnel people to see that a student's conception of his ability level is not based on just the results of one commercial test that happens to provide self-interpretive materials. A complete and balanced picture should be given and it is possible that this will occur only when materials are prepared for the unique test results available in any given school.

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